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sockets for medium screw base lamps or pin-based fluorescent lamps shall be measured in accordance with section 4 of appendix V of this subpart.

(y) *Medium Base Compact Fluorescent Lamps*. The initial efficacy, lumen maintenance at 1,000 hours, lumen maintenance at 40-percent of rated life, rapid cycle stress test, and lamp life shall be measured in accordance with section 4 of appendix W of this subpart.

(z) *Dehumidifiers*. The energy factor for dehumidifiers, expressed in liters per kilowatt hour (L/kWh), shall be measured in accordance with section 4 of appendix X of this subpart.

(aa) *Battery Chargers*. The energy consumption of a battery charger, expressed as the nonactive energy ratio, shall be measured in accordance with section 4 of appendix Y of this subpart.

(bb) *External Power Supplies*. The energy consumption of an external power supply, including active mode efficiency in a percentage and the no-load energy consumption in watts, shall be measured in accordance with section 4 of appendix Z of this subpart.

[42 FR 27898, June 1, 1977]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 430.23, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

### § 430.24 Units to be tested.

When testing of a covered product is required to comply with section 323(c) of the Act, or to comply with rules prescribed under sections 324 or 325 of the Act, a sample shall be selected and tested comprised of units which are production units, or are representative of production units of the basic model being tested, and shall meet the following applicable criteria.

(a)(1) For each basic model<sup>1</sup> of electric refrigerators and electric refrigerator-freezers, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of en-

ergy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 95 percent confidence limit of the true mean divided by 1.10, and

(ii) Any represented value of the energy factor or other measure of energy consumption of a basic model for which consumer would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 95 percent confidence limit of the true mean divided by .90.

(b)(1) For each basic model<sup>1</sup> of freezers, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 95 percent confidence limit of the true mean divided by 1.10, and

(ii) Any represented value of the energy factor or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 95 percent confidence limit of the true mean divided by .90.

(c)(1) For each basic model<sup>1</sup> of dishwashers, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the energy factor or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(d)(1) For each basic model<sup>1</sup> of clothes dryers a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy

<sup>1</sup>Components of similar design may be substituted without requiring additional testing if the represented measures of energy consumption continue to satisfy the applicable sampling provision.

consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the energy factor or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(e)(1) For each basic model<sup>1</sup> of water heaters, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 95 percent confidence limit of the true mean divided by 1.10, and

(ii) Any represented value of the energy factor or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 95 percent confidence limit of the true mean divided by .90.

(f)(1) For each basic model<sup>1</sup> of room air conditioners, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the energy efficiency ratio or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(g)(1) For each basic model<sup>1</sup> of unvented home heating equipment (not including furnaces), a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 97½ percent confidence limit of the true mean divided by 1.075, and

(ii) Any represented value of the annual fuel utilization efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be not greater than the lower of (A) the mean of the sample or (B) the lower 97½ percent confidence limit of the true mean divided by .925.

(h)(1) For each basic model<sup>1</sup> of television sets, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the energy factor or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(i)(1) Except as provided in paragraph (i)(2) of this section, for each basic model<sup>1</sup> of conventional cooking tops, conventional ovens and microwave ovens a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower

<sup>1</sup>Components of similar design may be substituted without requiring additional testing if the represented measures of energy consumption continue to satisfy the applicable sampling provision.

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values shall be no less than the higher of (A) the mean of the sample or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the energy factor or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(2) Basic models need not be tested which differ from other tested basic models by only the design of oven doors the use of which leads to improved efficiency and decreased energy consumption and estimated annual operating cost. Any represented values of measures of energy consumption for basic models not tested shall be the same as for the tested basic model.

(j)(1) For each basic model<sup>1</sup> of clothes washers, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the energy factor or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(k)—(1) [Reserved]

(m)(1) For central air conditioners and heat pumps, each single-package system and each condensing unit (outdoor unit) of a split-system, when combined with a selected evaporator coil (indoor unit) or a set of selected indoor units, must have a sample of sufficient size tested in accordance with the applicable provisions of this subpart. The represented values for any model of single-package system, any model of a tested split-system combination, any model of a tested mini-split system combination, or any model of a tested multi-split system combination must be assigned such that —

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of the central air conditioner or heat pump for which consumers would favor lower values must be no less than the higher of:

(A) The mean of the sample; or

(B) The upper 90-percent confidence limit of the true mean divided by 1.05;

(ii) Any represented value of the energy efficiency or other measure of energy consumption of the central air conditioner or heat pump for which consumers would favor higher values must be no greater than the lower of:

(A) The mean of the sample; or

(B) The lower 90-percent confidence limit of the true mean divided by 0.95;

(iii) For heat pumps, all units of the sample population must be tested in both the cooling and heating modes and the results used for determining the heat pump's certified SEER and HSPF ratings in accordance with paragraph (m)(1)(ii) of this section.

(2) For split-system air conditioners and heat pumps, the condenser-evaporator coil combination selected for tests pursuant to paragraph (m)(1) of this section shall include the evaporator coil that is likely to have the largest volume of retail sales with the particular model of condensing unit. For mini-split condensing units that are designed to always be installed with more than one indoor unit, a "tested combination" as defined in 10 CFR 430.2 shall be used for tests pursuant to paragraph (m)(1) of this section. For multi-split systems, each model of condensing unit shall be tested with two different sets of indoor units. For one set, a "tested combination" composed entirely of non-ducted indoor units shall be used. For the second set, a "tested combination" composed entirely of ducted indoor units shall be used. Components of similar design may be substituted without requiring additional testing if the represented measures of energy consumption continue to satisfy the applicable sampling provisions of paragraphs (m)(1)(i) and (m)(1)(ii) of this section. However, for any split-system air conditioner having a single-speed compressor, the condenser-evaporator coil combination

selected for tests pursuant to paragraph (m)(1) of this section shall include the indoor *coil-only* unit that is likely to have the largest volume of retail sales with the particular model of outdoor unit. This *coil-only* requirement does not apply to split-system air conditioners that are only sold and installed with *blower-coil* indoor units, specifically mini-splits, multi-splits, and through-the-wall units. This *coil-only* requirement does not apply to any split-system heat pumps. For every other split-system combination that includes the same model of condensing unit but a different model of evaporator coil and for every other mini-split and multi-split system that includes the same model of condensing unit but a different set of evaporator coils, whether the evaporator coil(s) is manufactured by the same manufacturer or by a component manufacturer, either—

(i) A sample of sufficient size, comprised of production units or representing production units, must be tested as complete systems with the resulting ratings for the outdoor unit-indoor unit(s) combination obtained in accordance with paragraphs (m)(1)(i) and (m)(1)(ii) of this section; or

(ii) The representative values of the measures of energy efficiency must be assigned as follows,

(A) Using an alternative rating method (ARM) that has been approved by DOE in accordance with the provisions of paragraphs (m)(4) through (m)(6) of this section; or

(B) For multi-split systems composed entirely of non-ducted indoor units, set equal to the system tested in accordance with paragraph (m)(1) of this section whose tested combination was entirely non-ducted indoor units;

(C) For multi-split systems composed entirely of ducted indoor units, set equal to the system tested in accordance with paragraph (m)(1) of this section whose tested combination was entirely ducted indoor units; and

(D) For multi-split systems having a mix of non-ducted and ducted indoor units, set equal to the mean of the values for the two systems — one having the tested combination of all non-ducted units and the second having the tested combination of all ducted indoor

units — tested in accordance with paragraph (m)(1) of this section.

(3) Whenever the representative values of the measures of energy consumption, as determined by the provisions of paragraph (m)(2)(ii) of this section, do not agree within 5 percent of the representative values of the measures of energy consumption as determined by actual testing, the representative values determined by actual testing must be used to comply with section 323(c) of the Act or to comply with rules under section 324 of the Act.

(4) The basis of the ARM referred to in paragraph (m)(2)(ii) of this section must be a representation of the test data and calculations of a mechanical vapor-compression refrigeration cycle. The major components in the refrigeration cycle must be modeled as “fits” to manufacturer performance data or by graphical or tabular performance data. Heat transfer characteristics of coils may be modeled as a function of face area, number of rows, fins per inch, refrigerant circuitry, air-flow rate and entering-air enthalpy. Additional performance-related characteristics to be considered may include type of expansion device, refrigerant flow rate through the expansion device, power of the indoor fan and cyclic-degradation coefficient. Ratings for untested combinations must be derived from the ratings of a combination tested in accordance with paragraph (m)(1) of this section. The seasonal energy efficiency ratio (SEER) and/or heating seasonal performance factor (HSPF) ratings for an untested combination must be set equal to or less than the lower of the SEER and/or HSPF calculated using the applicable DOE-approved alternative rating method (ARM). If the method includes an ARM/simulation adjustment factor(s), determine the value(s) of the factor(s) that yield the best match between the SEER/HSPF determined using the ARM versus the SEER/HSPF determined from testing in accordance with paragraph (m)(1) of this section. Thereafter, apply the ARM using the derived adjustment factor(s) only when determining the ratings for untested combinations having the same outdoor unit.

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(5) Manufacturers or private labelers who elect to use an ARM for determining measures of energy consumption under paragraphs (m)(2)(ii)(A) and (m)(4) of this section must submit a request for DOE to review the ARM. Send the request to the Assistant Secretary of Energy Efficiency and Renewable Energy, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Approval must be received from the Assistant Secretary to use the ARM before the ARM may be used for rating split-system central air conditioners and heat pumps. If a manufacturer has a DOE-approved ARM for products also distributed in commerce by a private labeler, the ARM may also be used by the private labeler for rating these products. Once an ARM is approved, DOE may contact a manufacturer to learn if their ARM has been modified in any way and to verify that the ARM is being applied as approved. DOE will give follow-up priority to individual combinations having questionably high ratings (e.g., a coil-only system having a rating that exceeds the rating of a coil-only highest sales volume combination by more than 6 percent).

(6) Each request to DOE for approval of an alternative rating method must include:

(i) The name, mailing address, telephone number, and e-mail address of the official representing the manufacturer.

(ii) Complete documentation of the alternative rating method to allow DOE to evaluate its technical adequacy. The documentation must include a description of the methodology, state any underlying assumptions, and explain any correlations. The documentation should address how the method accounts for the cyclic-degradation coefficient, the type of expansion device, and, if applicable, the indoor fan-off delay. The requestor must submit any computer programs—including spreadsheets—having less than 200 executable lines that implement the ARM. Longer computer programs must be identified and sufficiently explained, as specified above, but their inclusion in the initial submittal package is optional. Applicability or limitations of the ARM (e.g., only covers single-speed units when operating in the

cooling mode, covers units with rated capacities of 3 tons or less, not applicable to the manufacturer's product line of non-ducted systems, etc.) must be stated in the documentation.

(iii) Complete test data from laboratory tests on four mixed (i.e., non-highest-sales-volume combination) systems per each ARM.

(A) The four mixed systems must include four different indoor units and at least two different outdoor units. A particular model of outdoor unit may be tested with up to two of the four indoor units. The four systems must include two low-capacity mixed systems and two high-capacity mixed systems. The low-capacity mixed systems may have any capacity. The rated capacity of each high-capacity mixed system must be at least a factor of two higher than its counterpart low-capacity mixed system. The four mixed systems must meet the applicable energy conservation standard in § 430.32(c) in effect at the time of the rating.

(B) The four indoor units must come from at least two different coil families, with a maximum of two indoor units coming from the same coil family. Data for two indoor units from the same coil family, if submitted, must come from testing with one of the "low-capacity mixed systems" and one of the "high capacity mixed systems." A mixed system indoor coil may come from the same coil family as the highest-sales-volume-combination indoor unit (i.e., the "matched" indoor unit) for the particular outdoor unit. Data on mixed systems where the indoor unit is now obsolete will be accepted towards the ARM-validation submittal requirement if it is from the same coil family as other indoor units still in production.

(C) The first two sentences of paragraph (m)(6)(iii)(B) of this section do not apply if the manufacturer offers indoor units from only one coil family. In this case only, all four indoor coils must be selected from this one coil family. If approved, the ARM will be specifically limited to applications for this one coil family.

(iv) All product information on each mixed system indoor unit, each matched system indoor unit, and each outdoor unit needed to implement the

proposed ARM. The calculated ratings for the four mixed systems, as determined using the proposed ARM, must be provided along with any other related information that will aid the verification process.

(v) If request for approval is for an updated ARM, manufacturers must identify modifications made to the ARM since the last submittal, including any ARM/simulation adjustment factor(s) added since the ARM was last approved by DOE.

(7) Manufacturers that elect to use an alternative rating method for determining measures of energy consumption under paragraphs (m)(2)(ii)(A) and (m)(4) of this section must either subject a sample of their units to independent testing on a regular basis, e.g., through a voluntary certification program, or have the representations reviewed and certified by an independent state-registered professional engineer who is not an employee of the manufacturer. The registered professional engineer is to certify that the results of the alternative rating procedure accurately represent the energy consumption of the unit(s). The manufacturer is to keep the registered professional engineer's certifications on file for review by DOE for as long as said combination is made available for sale by the manufacturer. Any proposed change to the alternative rating method must be approved by DOE prior to its use for rating.

(8) Manufacturers who choose to use computer simulation or engineering analysis for determining measures of energy consumption under paragraphs (m)(2)(ii)(A) and (m)(4) through (m)(7) of this section must permit representatives of the Department of Energy to inspect for verification purposes the simulation method(s) and computer program(s) used. This inspection may include conducting simulations to predict the performance of particular outdoor unit "indoor unit combinations specified by DOE, analysis of previous simulations conducted by the manufacturer, or both.

(n)(1) For each basic model<sup>1</sup> of furnaces, other than basic models of those sectional cast-iron boilers which may be aggregated into groups having identical intermediate sections and com-

bustion chambers, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample, or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the annual fuel utilization efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample, or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(2) For the lowest capacity basic model<sup>1</sup> of a group of basic models of those sectional cast-iron boilers having identical intermediate sections and combustion chambers, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample, or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the fuel utilization efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample, or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(3) For the highest capacity basic model<sup>1</sup> of a group of basic models of those sectional cast-iron boilers having identical intermediate sections and combustion chambers, a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy

<sup>1</sup>Components of similar design may be substituted without requiring additional testing if the represented measures of energy consumption continue to satisfy the applicable sampling provision.

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consumption or other measure of energy consumption of a basic model for which consumers would favor lower values be no less than the higher of (A) the mean of the sample, or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the fuel utilization efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample, or (B) the lower 97½ percent confidence limit of the true mean divided by .05.

(4) For basic model<sup>1</sup> or capacity other than the highest or lowest of the group of basic models<sup>1</sup> of sectional cast-iron boilers having identical intermediate sections and combustion chambers, represented values of measures of energy consumption shall be determined by either—

(i) A linear interpolation of data obtained for the smallest and largest capacity units of the family, or

(ii) Testing a sample of sufficient size to insure that (A) any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (1) the mean of the sample, or (2) the upper 97½ percent confidence limit of the true mean divided by 1.05, and (B) any represented value of the energy factor or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (1) the mean of the sample, or (2) the lower 97½ percent confidence limit of the true mean divided by .95.

(5) Whenever measures of energy consumption determined by linear interpolation do not agree with measures of energy consumption determined by actual testing, the values determined by testing will be assumed to be the more reliable values.

(6) In calculating the measures of energy consumption for each unit tested, use the design heating requirement corresponding to the mean of the capacities of the units of the sample.

(o)(1) For each basic model<sup>1</sup> of vented home heating equipment (not including

furnaces) a sample of sufficient size shall be tested to insure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 97½ percent confidence limit of the true mean divided by 1.05, and

(ii) Any represented value of the fuel utilization efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(2) In calculating the measures of energy consumption for each unit tested use the design heating requirement corresponding to the mean of the capacities of the units of the sample.

(p)(1) For each basic model<sup>1</sup> of pool heater a sample of sufficient size shall be tested to insure that—

(i) [Reserved]

(ii) Any represented value of the fuel utilization efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of (A) the mean of the sample or (B) the lower 97½ percent confidence limit of the true mean divided by .95.

(q)(1) For each basic model<sup>1</sup> of fluorescent lamp ballasts, as defined in paragraph (14) of § 430.2, a sample of sufficient size, no less than four, shall be tested to insure that—

(i) Any represented value of estimated annual energy operating costs, energy consumption, or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of (A) the mean of the sample or (B) the upper 99 percent confidence limit of the true mean divided by 1.01, and

(ii) Any represented value of the ballast efficacy factor or other measure of the energy consumption of a basic model for which consumers would favor

<sup>1</sup>Components of similar design may be substituted without requiring additional testing if the represented measures of energy consumption continue to satisfy the applicable sampling provision.

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a higher value shall be no greater than the lower of (A) the mean of the sample or (B) the lower 99 percent confidence limit of the true mean divided by 0.99.

(r)(1) For each basic model of general service fluorescent lamp and incandescent reflector lamp, samples of production lamps shall be tested and the results for all samples shall be averaged for a 12-month period. A minimum sample of 21 lamps shall be tested. The manufacturer shall randomly select a minimum of three lamps from each month of production for a minimum of 7 out of the 12-month period. In the instance where production occurs during fewer than 7 of such 12 months, the manufacturer shall randomly select a 3 or more lamps from each month of production, where the number of lamps selected for each month shall be distributed as evenly as practicable among the months of production to attain a minimum sample of 21 lamps. Any represented value of lamp efficacy of a basic model shall be based on the sample and shall be no greater than the lower of the mean of the sample or the lower 95-percent confidence limit of the true mean ( $\bar{X}_L$ ) divided by 0.97, i.e.,

$$\frac{\bar{x} - t_{0.95} \left( \frac{s}{\sqrt{n}} \right)}{0.97}$$

where:

$\bar{x}$  = the mean luminous efficacy of the sample  
 $s$  = the sample standard deviation

$t_{0.95}$  = the t statistic for a 95-percent confidence limit for n-1 degrees of freedom (from statistical tables)

$n$  = sample size

(2) For each basic model of general service fluorescent lamp, the color rendering index (CRI) shall be measured from the same lamps selected for the lumen output and watts input measurements in paragraph (r)(1) of this section, i.e., the manufacturer shall measure all lamps for lumens, watts input, and CRI. The CRI shall be represented as the average of a minimum sample of 21 lamps and shall be no greater than the lower of the mean of the sample or the lower 95-percent confidence limit of the true mean ( $\bar{X}_L$ ) divided by 0.97, i.e.,

$$\frac{\bar{x} - t_{0.95} \left( \frac{s}{\sqrt{n}} \right)}{0.97}$$

where:

$\bar{x}$  = the mean color rendering index of the sample

$s$  = the sample standard deviation

$t_{0.95}$  = the t statistic for a 95-percent confidence limit for n-1 degrees of freedom (from statistical tables)

$n$  = sample size

(s) For each basic model of faucet,<sup>1</sup> a sample of sufficient size shall be tested to ensure that any represented value of water consumption of a basic model for which consumers favor lower values shall be no less than the higher of:

(1) The mean of the sample or

(2) The upper 95 percent confidence limit of the true mean divided by 1.05.

(t) For each basic model<sup>1</sup> of showerhead, a sample of sufficient size shall be tested to ensure that any represented value of water consumption of a basic model for which consumers favor lower values shall be no less than the higher of:

(1) The mean of the sample or

(2) The upper 95 percent confidence limit of the true mean divided by 1.05.

(u) For each basic model<sup>1</sup> of water closet, a sample of sufficient size shall be tested to ensure that any represented value of water consumption of a basic model for which consumers favor lower values shall be no less than the higher of:

(1) The mean of the sample or

(2) The upper 90 percent confidence limit of the true mean divided by 1.1.

(v) For each basic model<sup>1</sup> of urinal, a sample of sufficient size shall be tested to ensure that any represented value of water consumption of a basic model for which consumers favor lower values shall be no less than the higher of:

(1) The mean of the sample or

<sup>1</sup>Components of similar design may be substituted without requiring additional testing if the represented measures of energy or water consumption continue to satisfy the applicable sampling provision.



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(2) The upper 90 percent confidence limit of the true mean divided by 1.1.

(Energy Policy and Conservation Act, Pub. L. 94-163, as amended by Pub. L. 95-619; Department of Energy Organization Act, Pub. L. 95-91)

[44 FR 22416, Apr. 13, 1979, as amended at 44 FR 39153, July 5, 1979; 44 FR 76706, Dec. 27, 1979; 45 FR 53719, Aug. 12, 1980; 53 FR 8312, Mar. 14, 1988; 54 FR 6075, Feb. 7, 1989; 56 FR 18682, April 24, 1991. Redesignated and amended at 59 FR 49474, 49475, Sept. 28, 1994; 62 FR 29239, May 29, 1997; 63 FR 13316, Mar. 18, 1998; 70 FR 59135, Oct. 11, 2005; 72 FR 59920, Oct. 22, 2007]

### § 430.25 Laboratory Accreditation Program.

The testing for general service fluorescent lamps, general service incandescent lamps, incandescent reflector lamps, and medium base compact fluorescent lamps, shall be performed in accordance with Appendix R to this subpart and shall be conducted by test laboratories accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) or by an accrediting organization recognized by NVLAP. NVLAP is a program of the National Institute of Standards and Technology, U. S. Department of Commerce. NVLAP standards for accreditation of laboratories that test for compliance with standards for lamp efficacy and CRI are given in 15 CFR part 285 as supplemented by *NVLAP Handbook 150-01*, "Energy Efficient Lighting Products, Lamps and Luminaires." A manufacturer's or importer's own laboratory, if accredited, may conduct the applicable testing.

[62 FR 29240, May 29, 1997]

### § 430.27 Petitions for waiver and applications for interim waiver.

(a)(1) Any interested person may submit a petition to waive for a particular basic model any requirements of § 430.23, or of any appendix to this subpart, upon the grounds that the basic model contains one or more design characteristics which either prevent testing of the basic model according to the prescribed test procedures, or the prescribed test procedures may evaluate the basic model in a manner so unrepresentative of its true energy consumption characteristics, or water con-

sumption characteristics (in the case of faucets, showerheads, water closets, and urinals) as to provide materially inaccurate comparative data.

(2) Any interested person who has submitted a Petition for Waiver as provided in this subpart may also file an Application for Interim Waiver of the applicable test procedure requirements.

(b)(1) A Petition for Waiver shall be submitted, in triplicate, to the Assistant Secretary for Conservation and Renewable Energy, United States Department of Energy. Each Petition for Waiver shall:

(i) Identify the particular basic model(s) for which a waiver is requested, the design characteristic(s) constituting the grounds for the petition, and the specific requirements sought to be waived and shall discuss in detail the need for the requested waiver;

(ii) Identify manufacturers of all other basic models marketed in the United States and known to the petitioner to incorporate similar design characteristic(s);

(iii) Include any alternate test procedures known to the petitioner to evaluate in a manner representative of the energy consumption characteristics, or water consumption characteristics (in the case of faucets, showerheads, water closets, and urinals) of the basic model; and

(iv) Be signed by the petitioner or by an authorized representative. In accordance with the provisions set forth in 10 CFR 1004.11, any request for confidential treatment of any information contained in a Petition for Waiver or in supporting documentation must be accompanied by a copy of the petition, application or supporting documentation from which the information claimed to be confidential has been deleted. DOE shall publish in the FEDERAL REGISTER the petition and supporting documents from which confidential information, as determined by DOE, has been deleted in accordance with 10 CFR 1004.11 and shall solicit comments, data and information with respect to the determination of the petition. Any person submitting written comments to DOE with the respect to a Petition for Waiver shall also send a